

REMARKS

Status of Claims

Claim 3 and new claim 5 are pending, with claim 3 being independent. In order to expedite prosecution, claims 1, 2, and 4 have been cancelled without prejudice to or disclaimer of the subject matter contained therein. Claim 3 has been amended and new claim 5 has been added. Support for the amendments to claim 3 and for new claim 5 may be found throughout the specification, including, in the original claims and at page 6, lines 5-13.

Applicants respectfully request the Examiner to reconsider and withdraw the outstanding rejections in view of the foregoing amendments and the following remarks.

Claim Rejections Under 35 U.S.C. § 103

Claims 1-4 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Kubo et al. (JP 10-265918). Applicants respectfully disagree with the rejection; therefore, this rejection is respectfully traversed. For the Examiner's reference, Applicants attach hereto an automatic English translation of Kubo.

Kubo relates to a quasi-crystal aluminum-based alloy composition containing by weight 2-7% Fe, 2-12% Cr, and 1-10% Ni, wherein $7 \leq \text{Fe} + \text{Cr} + \text{Ni} \leq 15$ is satisfied. Kubo discloses that the alloy has intensity, excellent in formability and workability and suitable for use in production on an industrial scale. Kubo discloses that the alloy has good Charpy impact value. The Charpy test is a test of the impact strength of a material, used to determine its relative ductility or brittleness. The Charpy test is used in many industries for testing building and construction materials. Kubo states that the aluminum alloy disclosed therein having heat resistance with high intensity and specific strength is suitable for use for an airplane, car, motorcycle, and other machine parts.

Applicants respectfully submit that Kubo does not disclose or suggest a *utensil or vessel for cooking food products*, wherein the surface of said utensil or vessel that is in contact with the food products has a coating consisting of an aluminum-based alloy containing more than 80% by weight of one or more quasi-crystalline or approximant phases, having the composition $\text{Al}_a(\text{Fe}_{1-x}\text{X}_x)_b(\text{Cr}_{1-y}\text{Y}_y)_c\text{Z}_z\text{J}_j$ in which:

- X represents one or more elements isoelectronic with Fe, chosen from Ru and Os;

- Y represents one or more elements isoelectronic with Cr, chosen from Mo and W;
- Z is an element selected from the group consisting of Ti, Zr, Hf, V, Nb, Ta, Mn, Re, Rh, Ni, Pd and mixtures thereof;
- J represents the inevitable impurities other than copper;
- $a + b + c + z = 100$;
- $5 \leq b \leq 15$; $10 \leq c \leq 29$; $0 \leq z \leq 10$;
- $xb \leq 2$;
- $yc \leq 2$; and
- $j < 1$,

said aluminum-based alloy being *free of copper*.

In contrast to Kubo, the present invention relates to a utensil or vessel for cooking food products. Independent claim 3 is a product claim, i.e., a claim directed to this *cooking utensil or cooking vessel* in which the surface in contact with food has the recited alloy coating. As such, Applicants respectfully submit that claim 3 is a *product claim* precisely defined by its technical features – a cooking utensil or vessel in which the surface of the utensil or vessel that is in contact with the food products has a coating consisting of an aluminum-based alloy containing more than 80% by weight of one or more quasicrystalline or approximant phases, having the composition $Al_a(Fe_{1-x}X_x)_b(Cr_{1-y}Y_y)_cZ_zJ_j$.

As described above, Kubo relates to an aluminum alloy having heat resistance with high intensity, specific strength, and good Charpy impact value. The alloy of Kubo is designed for *industrial uses*, such as for an airplane, car, motorcycle, and other machine parts. As such, the alloy disclosed in Kubo belongs to a significantly different technical field than the presently claimed *cooking utensil or cooking vessel*. Kubo does not disclose or suggest that the alloy can be used as a coating for a cooking utensil, wherein the coating is applied onto the surface which is in contact with the food. Applicants further respectfully submit that one skilled in the art would not consider the teachings of Kubo when considering cooking utensils or vessels because the alloy of Kubo is used in a significantly different technical field and its goal is to solve a significantly different problem than that of the present invention.

Moreover, Kubo discloses that the alloy can further contain other metallic elements such as Mg, Si, Cu, Mn, V, Ti, and Mo in an amount of 0.01% to 3% in order to raise

strength, etc. Paragraph [0018] of the English translation. Kubo further discloses that Mg and Cu contribute to the strength intensity from room temperature to about 200°C. Paragraph [0019] of the English translation.

In contrast, the presently claimed invention relates to a *utensil or vessel for cooking food products*, wherein the surface of said utensil or vessel that is in contact with the food products has a coating consisting of an aluminum-based alloy containing more than 80% by weight of one or more quasi-crystalline or approximant phases, having the composition $Al_a(Fe_{1-x}X_x)_b(Cr_{1-y}Y_y)_cZ_zJ_j$ in which:

- X represents one or more elements isoelectronic with Fe, chosen from Ru and Os;
- Y represents one or more elements isoelectronic with Cr, chosen from Mo and W;
- Z is an element selected from the group consisting of Ti, Zr, Hf, V, Nb, Ta, Mn, Re, Rh, Ni, Pd and mixtures thereof;
- J represents the inevitable impurities other than copper;
- $a + b + c + z = 100$;
- $5 \leq b \leq 15$; $10 \leq c \leq 29$; $0 \leq z \leq 10$;
- $xb \leq 2$;
- $yc \leq 2$; and
- $j < 1$,

said aluminum-based alloy being *free of copper*.

As demonstrated in the comparative example in the present specification, the absence of Cu makes the alloy less sensitive to corrosion in a 0.35 NaCl medium and less sensitive to dissolution in salt water, which is commonly encountered in cooking. (page 5, line 34 – page 6, line 13). This comparative example demonstrates that a very low quantity of Cu, of around 0.54%, which is an order of magnitude of that of impurities, is sufficient for the corrosion resistance of the alloy to be significantly reduced. Accordingly, the presently claimed cooking *utensil or vessel* has on its surface that is in contact with the food products a coating consisting of an aluminum-based alloy, said aluminum-based alloy being *free of copper*.

As described above, the alloy of Kubo can further contain Cu in an amount of 0.01% to 3% in order to raise strength intensity. As such, Kubo discloses that addition of Cu to the alloy can improve some properties of the alloy. Accordingly, Kubo does not disclose or suggest an alloy that is free of copper, as presently claimed.

Therefore, Applicants respectfully submit that Kubo does not disclose or suggest a *utensil or vessel for cooking food products*, wherein the surface of said utensil or vessel that is in contact with the food products has a coating consisting of an aluminum-based alloy containing more than 80% by weight of one or more quasi-crystalline or approximant phases, having the composition $Al_a(Fe_{1-x}X_x)_b(Cr_{1-y}Y_y)_cZ_zJ_j$ in which:

- X represents one or more elements isoelectronic with Fe, chosen from Ru and Os;
- Y represents one or more elements isoelectronic with Cr, chosen from Mo and W;
- Z is an element selected from the group consisting of Ti, Zr, Hf, V, Nb, Ta, Mn, Re, Rh, Ni, Pd and mixtures thereof;
- J represents the inevitable impurities other than copper;
- $a + b + c + z = 100$;
- $5 \leq b \leq 15$; $10 \leq c \leq 29$; $0 \leq z \leq 10$;
- $xb \leq 2$;
- $yc \leq 2$; and
- $j < 1$,

said aluminum-based alloy being *free of copper*.

Thus, for at least the reasons discussed above, withdrawal of the obviousness rejection is respectfully requested.

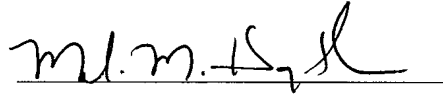
Conclusion

For the reasons noted above, the art of record does not disclose or suggest the inventive concept of the present invention as defined by the claims.

In view of the foregoing amendments and remarks, reconsideration of the claims and allowance of the subject application is earnestly solicited. In the event that there are any questions relating to this application, it would be appreciated if the Examiner could telephone the undersigned attorney concerning such arguments so that prosecution of this application may be expedited.

If necessary for a timely response, this paper should be considered as a petition for an Extension of Time sufficient for a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket # 104011.B130142).

Respectfully submitted,

A handwritten signature in black ink, appearing to read "m.m. Hayworth", written over a horizontal line.

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